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ABSTRACT

In one essay of this collection of four, Kenneth L. Pike explores the value of exercises which are based on axioms about language structure and which are designed specifically to develop writing competence; he lists eight tagmemic principles accompanied by suggested exercises. In another essay, Pike differentiates the roles of linguist and literary critic and applies linguistic analysis to jokes. Hubert M. English, Jr., demonstrates how using five of Pike's "universal concepts" of perspective can improve the content of student compositions and foster invention. Alan B. Howes emphasizes the student's need to sharpen his perception and consider the subject from several angles before writing about literature. He illustrates the value of Pike's model of particle, wave, and field, developed for the study of language, for encouraging the flexibility of perspective in the study of literature. (JM)

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Tagmemics

The Study of Units Beyond the Sentence

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A Linguistic Contribution to Composition

A HYPOTHESIS

KENNETH L. PIKE

My experience includes little direct connection with the teaching of composition either on the freshman level or with artistic aims. I have, however, been directly or indirectly involved in the training of 5,000 or more students in the initial phases of linguistics—especially in connection with the Summer Institute of Linguistics (with its principal training center at the University of Oklahoma), which is carrying on analytical work in some 260 languages in a dozen countries. In order to train these students to analyze and write descriptions of these languages we found it necessary to develop both a body of theory general enough to apply to any language whatever out of the several thousand in the world, and at the same time to invent exercises which would break down the learning problem into small bits in terms of simulated language—analytical situations. By isolating one component of a problem and building it into an artificial languagette for analysis, an extremely complex total problem can be tackled piecemeal. If all phases of an intricate problem are dealt with at once, on the other hand, training becomes diffuse, and satisfactory testing of results impossible.

It is from this background, when faced with the problem of Freshman Composition, that the query arose: *Would it be possible to explore a number of the axioms of such a language theory,*[1] *in order to develop exercises based on these axioms about language structure but specifically designed to develop writing competence?*

Underlying this question is the assumption that composition is but a specialized variety of the use of language, and that principles about language in general should therefore be exploitable for training in the more mechanical phases of the composition arts.

A composition style foreign to a beginning student—whether foreign because of its elegance, or its technical nature, or its contrast with oral style—must be learned *as a foreign language* is learned, by "hearing" it (in the analog of reading extensively and by "speaking" it (through its analog of extensive writing). Drills for this "essay dialect" or technical-writing style need to be broken down into drills on types of structure just as a language manual is.

The formal phases of writing comprise a set of structural habits, the productive control of written dialect, not a group of memorized propositions *about*

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1The specific theoretical approach utilized here may be called tagmemics, named after a grammatical unit proposed by the theory. Extensive discussion of the elements of the theory may be found in my **Language in Relation to a Unified Theory of the Structure of Human Behavior,** Part I, 1954; Part II, 1955; Part III, 1960 (Glendale [now Box 1960, Santa Ana, Calif.], Summer Institute of Linguistics); and Dimensions of Grammatical Constructions, **Language,** 38.221-44 (1962). The clearest application comes in Velma Pickett, **The Grammatical Hierarchy of Isthmus Zapotec, Language Dissertation** No. 56, (Baltimore, 1960); and development of the theory in Robert E. Longacre, String Constituent Analysis, **Language,** 36.63-88, (1960).

Sample exercises in analysis of sounds are found in Kenneth L. Pike, **Phonemics** (Ann Arbor, 1947); in the internal structure of words in Eugene A. Nida, **Morphology,** Second Edition (Ann Arbor, 1949); in structure of sentences in Benjamin Elson and Velma B. Pickett, **An Introduction to Morphology and Syntax** (Santa Ana, 1962), and in my **Language,** Part I, 1954, § 7.

More relevant to the student of literature are the artificial structures for exercise in translation, and the sample verse in such Lecture [illegible] of the series entitled Language and Life, Bibliotheca Sacra, 114.347-62 (1957).

spoken and written language. Learning to speak a language must not be confused with passing an exam about language structure. Some knowledge about the language is useful to the adult learner—but drills built to teach habits, along structural lines set forth by a linguist-plus-pedagogue team, make up the bulk of a successful language-learning course.

Accompanying this assumption, however, lies the belief that the individual artistic component of creativity is not directly accessible to the linguist—nor to any other scientist. No training in composition can guarantee that the students will develop into Miltons. Yet any artist uses certain tools competently. Drill on the use of particular language tools should be possible and, in theory at least, accessible to the linguist. Whether or not linguistic science has developed to where it can make a substantial contribution to composition, however, is precisely the point at issue.

A further assumption suggests more hopefully a contribution beyond that of mechanical form. If one assumes that thought itself is not fully structured until it is articulated through language—a view which I would personally hold—then an analysis of language forms would feed back on an analysis of thought structure.

It is from this view that I have been attempting to train people to write technical essays on linguistic structures. Currently, for example, the Institute has volumes appearing on the languages of Ecuador, Peru and New Guinea, where during the last two years I have been consulting with people working on some fifty languages. To the authors of these monographs I have insisted—since language and thought are intimately structured together—that sloppy rhetoric implies sloppy thought; that the careful analysis of the rhetoric of a paragraph implies an analysis of the thought structure underlying it. This view is empirically supported. Frequently when one queries an inadequate sentence in a technical essay one finds that a deeper conceptual difficulty prevents adequate rewriting until the analysis itself is clarified. Therefore training in detecting lack of clarity in mechanical expression has some useful transfer to creative thought.

With this explanation of our assumption that language theory is relevant to composition, I turn to a list of a few axioms about language accompanied by suggested exercises which might conceivably prove to be useful. This material is designed to be a hypothesis, not a solution—to stimulate professionals in the teaching of English composition to develop kinds of techniques on a more formal and systematic scale which they undoubtedly may have used informally or without reference to a specific theory of language. Nor does this approach claim to be complete. It touches on only a few of the basic problems.

Ideally this material should be accompanied by an anthology of writings which illustrate each of the points involved. Because of requests for access to it, however, it seemed wiser not to wait for the ideal, but to make the general suggestion available now. In order to be most useful, the material would eventually need to be cast in a form that teaching fellows without linguistic training can utilize. The testing of the fruitfulness of the suggestions must be carried out by literary scholars since the linguist has not necessarily learned either the pedagogy of essay writing nor the nature of its artistry and values.

(1) *A unit to be well defined must be treated in reference to its contrast with other units, its range of variability, and its distribution in class, sequence, and system.* This requirement applies to units whether they are movements, patterns, concepts, or things.

(1a) Only if a unit has been con-

trasted with other units is it well defined. *A unit is known well only if one knows what it is not.* Only if the essayist makes sure that the reader knows what the title does not cover, for example, is the topic well defined. This requirement applies to large units like a total essay or to small ones like the sound [b]—and to a table or a drawer in the table.

As components of a unit are identified which permit one to keep its nature negatively clear, these same components, once established, then serve positively to help one to recognize that unit at moments or places where the contrast cannot be directly established.

EXERCISE: Write an essay describing some item (e. g., a table, king, unicorn) or event (a wedding, jump, blink) in which the total attempt is to say what the unit is not. Set it off contrastively. Then rewrite the same essay varying the style by direct positive description.

Caution: First attempts at listing negative components of a unit may include many random and irrelevant items. Eventually, relevance and priority must come into the weighting of the components. As a corrective it may be advisable to draw, in advance, on (5) where elements of meaning, usefulness, and purpose have priority over form in human affairs.

(1b) Similarly, a unit is well defined only if its range of variation is made explicit. No action—for example—is exactly repeatable by the human being, due to physiological muscular limitations. If any movement is to be identified as the same as any other movement, or as having been repeated, *it is essential that the observer learn what differences he is to ignore.* Otherwise he may not separate irrelevant differences from relevant contrast, and his identification of a unit will falter. (Otherwise, for example, he cannot bathe in the 'same' river twice—or even recognize the girl he invited yesterday.)

Variation may be random (conditioned by no element in the observable context), or it may be caused by some component of the environment.

EXERCISE: Rewrite the essay of (1a) while focusing on the range of variation of the item—whether from age, accident, environment, etc.—rather than its contrast or identification. Add a comment to the essay discussing the differences of style resulting from the change.

(1c) A unit is, in addition, well defined only if its distribution is specified, with the unit seen as occurring as a member of a *class of alternatives,* which come in a particular slot (see 2) in a particular high level structure. At the same place in the pattern or sequence of events what units might conceivably have occurred rather than the one observed? What choices, for example, might have been possible for John at the time he threw a touchdown pass?

EXERCISE: Choose from some pattern (or story) some thing(or event). List a number of different items which the culture might have allowed to occur at that place and suggest how the pattern or outcome would have been affected by each substitution.

(1d) A unit is well defined only if its distribution is specified in reference to the particular *sequence of specific items with which it can occur, or with which it characteristically occurs.* The more frequently a word occurs with a particular set of other words, for example, the more that set becomes the normal defining context for the meaning of the term. The more rare the particular distribution the more of a semantic impact it has; poetic discourse and slang utilize special linguistic or social distributions for affecting the audience.

EXERCISE: Describe various kinds of patterns or contexts in which the item of (1a) is expected to occur—and write an essay or story in which its unexpected occurrence becomes crucial.

EXERCISE: Write a conversation in which controlled juxtaposition of words radically affects the style of the output, by having one speaker in the dialogue utilize extensive clichés, and the other speaker utilize discordant juxtapositions of words in an unexpected variety.

1e) A unit is well defined only if its distribution is specified in reference to its occurring in a system. System can often be best understood as an *intersecting network* of contrasts. For example, in a phonetic chart such as

p	t	k
b	d	g
m	n	ŋ

the three columns (vertical dimension) show, respectively, action at the lips (p, b, m), at the tongue (t, d, n), and at the back of the tongue (k, g, ŋ). The three rows (horizontal dimension) show air stopped in the mouth (p, t, k) air stopped in the mouth with the vocal cords vibrating (b, d, g), air stopped at the mouth exit but not at the nose (m, n, ŋ). The unit [b] is defined, in this system, as coming at the intersection of the lip action and the closed mouth with vocal cord vibration.

EXERCISE: Taking for one dimension the contrast between formal and casual style, and for the other dimension standard and substandard dialects, rewrite a paragraph of one of the earlier essays using successively each of the four styles implied by the intersecting dimensions. Then, as a further dimension, add universe of discourse differences—science fiction on Mars versus young child in a nursery—and discuss the further changes that would be needed to meet the requirements of the implied patterns.

(1f) When an essay as a whole is considered as a unit, it too may be well defined. Tests of an essay in this framework can in part answer the question: *How do you know when you have thought well?*

EXERCISE: For some essay or story given you, test for its well-defined character. Does the essay derive some of its distinctive features from negative liimts placed on the topic? How are these related to elements positively identifying the topic? Does the essay clearly set up the limits of variability of its topics? Was the topic integrated with choices in a higher level cultural situation? Or logically or in sequence close to it? Is the topic treated as a point of intersecting dimensions in a larger universe of discourse?

(2) *A repeatable, relevant pattern of purposive activity is made up of a sequence of functional classes-in-slots.* I have stated (1c) that membership in a class of alternatives in a slot of a structure is relevant to the definition of a unit. Now we go further, stating that a structural pattern is composed of sequences of functional slots meaningful to the culture, and with each slot having a class of alternative units eligible for filling it. (The combination of slot-plus-class is called a tagmeme; a sequence of tagmemes makes up a construction. The subject-as-actor, for example, is a tagmeme in a transitive clause construction illustrated by the sentence *John saw Bill*). The presence of slots, with their alternatives, allows behavior to be segmented into relevant parts.

EXERCISE: Choose a short story. Cut it up into episodes. Discuss, for each, some alternative events which might have occurred, instead, at that point in the story. Show how different choices would have changed the story. Then show how the particular sequence of episode types in this story is a culturally-provided sequence of choice-points-and-alternative-decisions which sets a framework for the development of a particular set of quite different—even antagonistic—character types.

EXERCISE: Write two brief essays in which some situation is chosen such that the beginning, or ending, or progression of the two essays is identical but at certain points different alternatives are chosen. Try writing a paragraph or a few lines of verse in which at some one point extensive verbal alternatives are suggested.

(3) The slots occur in *larger and larger units of interlocking levels.* Simple words like *boy* occur in slots within phrases like *the big boy.* Phrases like *the big boy* occur in clauses such as *I saw the big boy.* Clauses occur in sentences, which occur in paragraphs, in monologues, in discourse, and in conversation or larger formal literary units.

Between the levels some languages give intricate concord. Affixes of words (subject-object pronouns, tense indicators, and so on) may be in agreement with independent parts of the clause or sentence. Thought structure and its language analogs sometimes involve writing which ties the large to the small level.

EXERCISE: Write an essay in which microcosm and macrososm are somehow integrated (e. g., where home-situation detail is intimately linked in concord with a job in a larger social environment).

(4) *A three-way hierarchy of levels is found in natural* human language and in other purposive activity. The structure of language is not a simple hierarchy of levels; rather, it is an interlocking set of three hierarchies—lexical, phonological, and grammatical.

(4a) The *lexical hierarchy* includes word parts (such as the plurals of *boys*), words, phrases, clauses, and so on—the specific lexical bits. A specific sonnet would be a high level unit in the lexical hierarchy.

On low levels, or high levels, words can be used in normal distribution with central meaning, or in special distribution with metaphorical meaning of special impact. As essay may include metaphor at the low level— (*a boy is a fox*) —or at a high level (images, similes, or a poem as a whole involving a symbolic response).

In a poem the lexical structure may have reference to recurrent words of a related set (*spring, summer, fall*). *It* may refer rather to instance and class such as *dog, animal.*

EXERCISE: Write an essay, using words in their central meanings. Rewrite the essay using metaphor extensively. Rewrite, presenting the same topic through a single extensive analogy, or parable. Rewrite, seeking higher impact for the same topic by creating a poem which indirectly implies the same attitude to the topic.

(4b) The *phonological hierarchy* at the lower level includes small components such as the sound [b] in which the lips close while the vocal cords vibrate. Sounds combine to form larger units—syllables, stress groups, pause groups, and the like. The phonological hierarchy is utilized for structural purposes beyond the routine of syllable structure when patterns of rhyme, patterns of meter, or other recurrent phonological elements—say intonation—are involved.

EXERCISE: Build some verse in which you use choices in phonological slots, leading to rhyme. Then a few lines exploiting phonologically-controlled sequence, leading to alliteration. Then build some verse in which the smaller bits are integrated with a larger pattern of recurrent stresses in such a way that the number of syllables and sounds is ignored, but the recurrent pattern of accent becomes especially meaningful.

EXERCISE: Study contrastive intonation markings of an essay (or poem) through various transcriptions of several differ-

ent readings[2] of the essay as given you by your instructor. Rewrite the essay trying to give in words the effect obtained by the intonation.

EXERCISE: Write an essay or poem. Mark it crudely for pitch and accent. (Do not worry if it is inaccurately done.) Re-mark the essay with an intonation which, by implying sarcasm, reverses the meaning of it.

(4c) The *grammatical hierarchy* includes levels of tagmemic slots and of constructions (cf. 3).

Possibility for development of writing power includes the ability to exploit all the construction resources of the language— complex sentences, and paragraph, discourse, or genre structure—and their cross-linkages. The grammatical hierarchy may be distorted for special effects.

EXERCISE: Write a brief essay in which only complex sentences are used—with each sentence representing several levels of the grammatical hierarchy. Rewrite, utilizing exclusively short, simple sentences.

EXERCISE: Select a poem. Discuss the manner in which the author exploits all three hierarchies at various levels of each.

(5) Language is a composite of form and meaning. If a person tries to study meaning without reference to the formal structure of language, he may end up with no structuring at all. *Meaning does not occur in isolation, but only in relationship to forms.* To a very great extent, at least, thought patterns can develop with clarity only as internal or external speech develops in an organized fashion—or as it gradually gets orgainzed on paper. Purpose, in nonverbal action, is the analog of meaning in language.

EXERCISE: Select a paragraph from an essay. Can you identify some concepts which could not be conveyed by gesture or picture? How does language allow for thought development in this instance?

EXERCISE: Write an essay matching form to action type, for reinforcement of impact. Choose, for example, some kind of action which is sharply, quickly varied. To describe it use a language structure varying sharply in lexical type, accentual patterns, word length, and grammatical complexity. Then choose a smoothly-developing situation and a smoothly-flowing language situation to discuss it.

EXERCISE: Write a story in which three episodes[3] would appear identical to a camera, but the meaning, purpose, and relevance differ sharply because of the larger situations of which they are a part (murder, insanity, loyalty). How does this exercise differ from (1c) or (2)?

(6) *Language units can be viewed as particles, or as waves, or as points in a linguistic field.* Tagmemic theory emphasizes that the human observer must successively vary his viewpoint to each of these three if he wishes to experience fully any unit. Each of the three is in some sense, at some times, common to human behavior and human experience.

(6a) For some analytical purposes the observer must view behavior as a *sequence of particles* (*or segments*). Perhaps this is the way in which a person most usually sees units. The possibility of segmentation is correlated with alternatives available (substitutable) at a choice point (see slot and class in 1c and 2).

EXERCISE: Write an essay. Make sharp the segment borders so that the parts of the essay following one another in sequence are specific, separate chunks. Show their sharp-cut relationship to slots in a higher structure implied by the essay.

(6b) For some other purposes, how-

2For a poem of Emily Dickinson marked by line drawings for three distinct intonation patterns, see my Language, Part III (1960), § 13.5.

3See my Operational Phonemics in Relation to Linguistic Relativity, Journal of the Acoustical Society of America, 24.618-25, (November, 1952).

ever, the observer must study the same units as *waves in which the borders may fuse* into one another in a physical continuum. This fusion results in an indeterminacy of segment borders.

EXERCISE: Rewrite the essay of (6a). Fuse every part of the essay into its neighbor with smooth overlapping transitions. Let paragraphs slur together. Exposition of the second part must be anticipated before the first ends. Physical components of the activity described should be highlighted to make easier the description of anticipatory action.

(6c) For still further purposes the observer must treat language as some kind of field. In this view the units become intersecting points of contrasting features (1e) of form and of meaning (5) *in the network of a background system.*

EXERCISE: Rewrite the essay, above. The units as chunks or segments should now be out of focus and the physical characteristics should be softened. Focus, rather, on the total situation as an intricate web of intersecting elements no one of which can be clearly separated from the others. Differing personal intentions should show up through identical actions (see fn. 3 in 5); some intentions may be manifested in a variety of actions (see 2); and fusion occurs in sequences of actions (see 6b).

EXERCISE: Rewrite the essay, moving from one of these points of view to the next, successively, to give effects of sharp structural perception, then of concrete physical impact, and finally of total understanding of a life system.

(7) Language must be analyzed as social behavior. Speech is an act. Although code or symbol is involved, *language is communicative, symbolic behavior,* not a total abstraction from action. Speaker, hearer, and the connecting social and physical setting are relevant to the understanding of the language act.

Communication, in this view, may be called a "molecule" with two "atoms." The first is the formal component—words, sounds, grammar. The second is a social one. Only when language occurs against an adequate background of shared social system and social behavior does communication take place—or foreign languages get learned easily.[4]

EXERCISE: Write an essay illustrating lack of communication when social backgrounds differ. Rewrite it, illustrating difficulties of other classes of listeners.

(8) *Change passes over a bridge of shared components.* Tagmemic theory suggests that change never occurs in terms of action at a distance, but only over a bridge[5] made up of some shared component. Syllables change by merging at their borders. Words change by fusion, as the phrase *as you* may smear in fast speech. Systems of language smear also, in that words from one may be borrowed by the other through bilinguals who share the two.

EXERCISE: Write an essay stating two different but related points of view. Then rewrite the essay showing how someone found his view changing, pivoting on some shared component of culture or language or experience.

Rules and patterns cannot of themselves create a man. Something within him, beyond language forms or training, determines whether he will be highly creative of beauty or of truth. The depth of beauty of his production—or even the fact that he produces at all—may nevertheless depend on his understanding of the language mechanisms of beauty and pattern.

After the mechanism, or along with it, must come models. The artist in embryo must study the artist in fact. At this point—if not long before—I cease to be one of his teachers.

4Nucleation, **The Modern Language Journal,** 44.291-95 (1960).

5Toward a Theory of Change and Bilingualism, **Studies in Linguistics,** 15.1-7 (1960); and Stimulating and Resisting Change, **Practical Anthropology,** 8.267-74 (1961).

Beyond the Sentence

KENNETH L. PIKE

UNDERLYING MY VIEWS concerning the structure of language and experience are several beliefs:

The observer adds part of himself to the data that he looks at or listens to. He hears more than impinges on the ear. His inner self adds to nonrandom ear drum rattle a restructuring conditioned by his private experience and his social-cultural setting. Whatever structure may reside in the data proper, it inevitably becomes moulded by the observer. An unbiased report is impossible.

Observers differ, and hence their reports differ. An author, observing the action of people (or observing his own work), a critic observing the work of author, the philosopher or critic of critics observing the critic, and the man in the street observing author, critic, and philosopher – each brings some structural bias to the data he sees.

A bias of mine—not shared by many linguists—is the conviction that *beyond the sentence* lie grammatical structures available to linguistic analysis, describable by technical procedures, and usable by the author for the generation of the literary works through which he reports to us his observations. The studying of these structures has thus far been left largely (but not exclusively) to the literary critic. But even a brief glance in this direction where the linguist still has so much to learn has enriched my own experience. Sheer delight awaits the linguist who sees the poem as linguistically a unique lexical event (an intricate "idiom" as it were) with an interlocking (partially unique) phonological structure embedded in a high level grammatical pattern (in a genre, that is to say, which is in part culturally determined and in part created newly).

Complexity can be fractionated, but experienced wholeness must be affirmed as beyond the debris. Analysis of an object—like the dissecting of a rose—may give insight to structural detail, by tools allowing systematic description, while destroying almost everything about the rose which is of value—its beauty. As I see it, the literary critic should welcome the linguist as a low level servant. But when the linguist is through with his fun and his mechanisms, the important problems of value permanence, esthetic impact, and social relevance must then be tackled by the literary critic.

The tagmemic approach to linguistic theory (of which this article is an example) claims that certain universal invariants underlie all human experience as characteristics of rationality itself. Since I have discussed them elsewhere (See "A Linguistic Contribution to Composition," *CCC*, May, 1964), I merely list four sets of these characteristics so that I can refer to them in a moment, as I attempt to show how they can be brought to bear on language structures of types which may range beyond the sentence.

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(1) Units as structures:
  (a) with contrastive-identificational features,
  (b) with variants, which include some physical component,
  (c) distributed as members of classes of items, functioning within slots (positions) in a temporal sequence (or spatial array), and distributed in cells of a dimensional system;
(2) Perspectives as complementary:
  (a) as particle,
  (b) as wave,
  (c) as field;
(3) Language as social behavior:
  (a) with form-meaning composites,
  (b) in a universe of discourse,
  (c) with impact or change carried over a bridge of shared components;
(4) Hierarchies as interlocking:
  (a) lexical,
  (b) phonological,
  (c) grammatical.

The observer brings to bear on experience a unitizing ability. Without segmentation of events into recallable, namable chunks, without abstraction of things as figure against ground, without reification of concepts manipulatable as discrete elements by our mental equipment, man would be inept. These unitizings are an observer imposition on a continuum. So, also, is the recognition of units as contrasting with one another; the ability to ignore irrelevant differences; and the possibility of experiencing one element as in relationship with other elements in a system.

The observer can change perspective. On the one hand he can study experience as made up of particles, or unit chunks. On the other hand he can use physical equipment to prove—on the supra-atomic level—that data occur in a continuous merging or flow. Or he can see an item as a point in a mesh of relationships. These perspectives, likewise, are imposed by the observer.

The understanding of a language involves the observer-linking of a linguistic form to an experienced meaning. This form-meaning integration takes place relative to a universe of discourse, a generalized field of observation, cut out by the observer from possible areas of interest to him. And when he wishes to communicate with others, to influence them by his writing, or to let them share an experience of his own, he must do so by getting to the reader on territory which they share psychologically, physically, or linguistically. This, too, reflects an observer characteristic.

The observer can fasten attention on larger or smaller units of a uniform series. He can also focus upon one of various types of uniform hierarchical series simultaneously present within a larger unit. The capacity for focus on these hierarchies or their various levels is an observer component. It allows for the studying of interrelations of words within a larger work, as these words make up lexical sets (*spring, summer, fall*) in a lexical hierarchy and universe of discourse, the study of phonological integration (alliteration within a phrase, meter within a poem), and the study of the function of formal segments of sentences, or of stanzas, or of formal parts of an essay (introduction, body, conclusion).

Evidence which to me brings an overwhelming reaction of wholeness to a language element—whether composed of one or many sentences—can be seen in jokes. In order to analyze one of them, it often becomes necessary to call on a large percentage of the theoretical apparatus which we have mentioned. For example: "Even worse than raining cats and dogs is hailing taxis" (from a collection by Robert Margolin, *The Little Pun Book*, 1960). (1)[1] This joke is a unit. (a) It contrasts with other kinds of language units—with a drama, a novel—by its briefness, its element of surprise, its highlighted pun. (b) It can be told in a variety of ways, not all equally efficient, e.g., with reversed order, "It is worse if it is hailing taxis rather than raining cats and dogs." (c) This kind of joke is appropriate to a particular set of situations in our social structure; in other places—e.g., some formal ones—it would be unwelcome. (2) The joke (a) is a whole segment, a language particle. Included within it are smaller particles— words, sounds, grammatical parts. (b) Viewed as a wave composite, however, one sees within it sequences of articulatory movements merging within syllables (with vocalic nuclei) within stress groups, as elements of higher level phonological waves. (c) Viewed as field, the joke is composed of the intersecting universes of discourse of weather and traffic, and the intersecting hierarchies (or conflation of hierarchies) of lexicon, phonology, and grammar.

(3) (a) As a composite of both form and meaning the joke is lost if the specific words are replaced by apparent synonyms, or if idiomatic expressions are replaced by explicit statement. If we wish to retain the joke, we must not replace "cats and dogs" with "hard," or "hailing" with "calling." To change the form—whether particular sounds, or words, or grammar—at a crucial point is to destroy the joke. Neither form nor meaning can survive by itself. (b) The joke switches from the universe of discourse of the weather, to that of traffic (or transportation), and back to weather, (c) turning on shared components of lexicon, phonology, and grammar.

The shared lexical set includes "rain" and "hail" from the universe of discourse of the weather. Phonological sharing includes the homophonous pronunciation of "hail" (as falling ice), and "hail" (as a calling act). The grammatical sharing involves the grammatical equating of the two contrastive forms with "-ing."

(4) Hierarchical elements are involved. (b) The pun on "hailing" occurs phonologically at the word level. But (a) the pun works only because of its place in the higher level lexical idiom "raining cats and dogs." The influence of the phrase "raining cats and dogs" carries forward—with the help of the phonological homonymy and (c) the grammatical ambiguity of the "-ing" forms—to force the interpretation of "hailing" into the universe of discourse of "raining." At the same time, the high level lexical phrase "hailing taxis"—once it is interpreted as a participle plus its object—retrospectively forces the phrase "raining cats and dogs" to be interpreted literally within an imaginary universe in which the weather pattern can include taxis as also falling from the sky. Thus (a) the interpretation of the higher level lexical idiom is broken down into an interpretation as a non-idiomatic sequence of lexical elements.

Other jokes build on these same theoretical components but in different proportions: "Why are a mouse and a pile of hay alike?—The cattle/cat'll eat it." The immediate attention here is focused on the homonymity of "cattle"

1. The parenthesized numbers and letters in this discussion and in the later discussion of Emily Dickinson's poem are keyed to the outline of tagmemic principles presented earlier in this article.

and "cat'll." Each (provided one uses the contracted pronunciation of "cat will" needed here) is a single stress group with identical vowels and consonants. But it would be a serious error to assume that the pun could be described by phonology alone. As for lexicon, there is the contrast of the one word "cattle" with the lexical sequence "cat will." As for grammar, there is the difference of the grammatical relation of "cattle" and "cat will" to the remainder of the sentence (as part of subject only, versus part of subject and predicate). As a unit, on the other hand, this joke contrasts with the first pun in that it has a grammatical structure beyond the single sentence—it has a question segment and an answer segment as its characteristic parts.

If jokes of various subgenres are short linguistic particles, yet so complicated that all available linguistic apparatus must at times be called on for explaining them, how can we conceivably expect to use anything less for the description of a sonnet, epic, or tragedy? And with all this complexity we must continue to expect—as for the jokes—that the observer will supply the intuition of the integration of the parts into a form-meaning whole, often beyond the sentence in size and intricacy of structure, and beyond the sum of separate words in meaning. So, with Murray Krieger (writing in *College English,* 25.6.408, 411, 1964) we may be "astounded with all that seems to happen at a stroke," during the "multiple levels of simultaneity which the acrobatic poetic context displays," as it arrives at meanings which "cannot be reduced" to assertions *about* the poem.

If, furthermore, we conclude with Robert Frost that the chief thing about poetry is that it is metaphor "just saying one thing in terms of another" so that college boys can be told "to set their feet on the first rung of a ladder the top of which sticks through the sky" (from his essay "Education by Poetry," reprinted in Robert A. Greenberg and James G. Hepburn, *Robert Frost, An Introduction,* 1961) then a continuity emerges between the kind of meaning found in a good poem and the meaning of a pun. Both deal with multiple, simultaneous meanings, with a crossing from one universe of discourse to another over the web of interwoven hierarchies of lexicon, phonology, and grammar—often, but not always, beyond the sentence.

My literary colleagues insist, however, that demonstration of the relevance of a set of analytical tools to a joke cannot automatically be assumed to transfer to the analysis of a poem. To test this relevance on a poem which was neither too simple to be interesting nor too long to be feasible (nor selected to fit the approach) I returned to a poem which had previously (1953) been selected for me by a colleague on the basis of literary interest, rather than on the basis of any prior judgment of linguistic form. The poem was by Emily Dickinson:

> The brain within its groove
> Runs evenly and true;
> But let a splinter swerve,
> 'Twere easier for you
> To put the water back
> When floods have slit the hills,
> And scooped a turnpike for themselves,
> And blotted out the mills!

At that time I had had the poem read aloud by various persons, and recorded. I marked these variant readings for the pitch of the voice (with three alternate readings published later in *Language in Relation to a Unified Theory of the Structure of Human Behavior,* Vol. 3, pp. 48-49, 1960). Now, however, I wanted to find out whether any of the points listed above would force me to ask questions about this poem which had not occurred to me when I was looking at it from the point of view of its pitch alone. What I now saw (as linguist, not as literary scholar) is this:

(1) Unit. (a) In form (rhyme, length) the piece contrasts as poem versus essay—and so on—or even with a more specialized poetic form such as the sonnet. Its over-all meaning—constrasting with other possible messages—seems to be that the brain is delicate and can suffer drastic permanent damage.

(b) Variation occurs both in the form and in the meaning (interpretation of the form). Variants in the writing of the poem—i.e., alternative wordings of the author—have been published (in Thomas H. Johnson, *The Poems of Emily Dickinson*, 1955, p. 425). Word alternates occur there ("a Current" and "the Waters" for "the water"; "trodden out" and "shoved away" for "blotted out"). When one selects a reader (rather than author) as observer, a further set of variants e m e r g e s. Different readers bring sharply-different intonations and dynamic phonological structures to the poem. They add meanings to the poem to whatever extent intonations themselves (or stress, voice quality, and so on) carry meaning. In my earlier recordings, referred to above, the reading by a graduate student occurred as a somewhat dull sing-song. The second reading, by a poet, attempted to prevent overemphasis on rhythms, by using a quiet near-monotone. The third reading, by a literary critic, attempted to highlight individual words (since he felt that in Dickinson's writings the separate words were often highly meaningful) and did so by the use of extra pauses, emphatic stresses, high pitches, change of pitch direction, and sharp change of speed.

(c) Due to the contrastive characteristics already mentioned, the poem finds its place in a class of short poems as a member of the poetic genre filling its appropriate role in the larger system of literary types. Internally, the evidence that classes of alternatives are present has already been indicated in terms of the alternate words suggested by the author of the poem. These words do not occur at arbitrary places, but in reference to substitution in grammatical slots. The selection of a particular word as an alternate, however, is probable only if it fits the proper universe of discourse, and is a member of the class appropriate to a slot in that particular construction.

(2) (a) Among the particles whose inter-relationships one would like to understand in this poem are the "brain," "groove," "splinter," "water," d a m, "mills," and others. What is the groove? or the splinter? It seemed to me that the analogy requires that the groove be thought of as guiding some kind of a moving door in its track—which would jump from the track if a splinter got in its way. This would allow for the analogy of the water going through the millrace turning the wheel, but causing chaos if it jumps over the bank and tears out the dam.

(b) Processes supply the wave component. The brain was represented as a process—a flowing (through the groove); the water also occurred as flowing (through the millrace). The swerving of the brain led, it seemed to me, to wreckage, just as the swerving of the water tore out the mills and ended in destruction. While I checked with my colleagues, however, I found that there was by no means agreement as to the meaning of the splinter or the groove. An indeterminacy of observer interpretation was certainly present. (One quick answer—that the groove was like those in a bowling alley—seems unacceptable within the context—field—of the poem, since there we prefer to have the ball stay out of the groove!)

(c) In searching for some type of presentation for field, in line with the preceding interpretation, I seemed to understand the poem better when I looked at it as showing states of health

and illness intersecting with productive elements of brain and water. A healthy brain produces good thoughts; a sick one chaos. Controlled water produces work in the mills; swerved water leads to economic loss and damage of equipment. These can be shown in a two-dimensional schema:

	Well	*Sick*
BRAIN	good thinking	mental illness
WATER	mill production	valley disaster

(3) Yet a social component lay hidden in my judgment. I realized this only when someone raised a question as to whether the mills were to be considered good (as productive) or bad (as economic clutter of an ideal landscape). If the author had thought of them as bad, then the figure of speech of the mill (working backwards through the poem) might force a change in the interpretation of brain movement. Instead of representing a process of becoming ill, mental change could be seen as growth of outlook, irreversible but desirable. An analytical-observer component could therefore not be left out of consideration here.

Similarly, an observer component is involved in the total meaning of the poem. The statement "Mental illness is bad" does not carry the same impact that the poem does. Thus (a) the poem is a form-meaning composite such that the meaning (as impact) will not remain unchanged if the poem is put into prose. Part of this impact, further, comes (c) by the use of pivot elements shared (b) by the two universes of discourse of brain activity and water activity for the mill. They share (in a metaphor) the concept of channel and they both can swerve from course. Without the sharing of these elements from the larger behavioral setting, the metaphor would be powerless.

(4) The linguistic elements can be analyzed hierarchically. (b) Sounds enter into syllables, the syllables into feet, the feet into the larger groupings. (a) The words enter phrases, the phrases into the clause or the total sentence. Some lexical sets—the rhyming ones, "true" and "you," "hills" and "mills"—have their membership determined by phonological criteria. Other sets have other properties such as a kind of a semantic hierarchy; the movement from micro-level (with "splinter") to macro-level (with the "hills") carries a special impact. (c) Grammatical entities (such as subjects and predicates and locatives) enter into larger and larger constructions within the poem, and an internal feature of the structure of the plot of the poem as a whole is seen in the shift of the section dealing with the brain to the second which discusses the water in its parallel swerving and resultant chaos.

One further question arises: How do these considerations apply to the teaching of composition? I earlier suggested a list of exercises which might have some possible relevance at this point (CCC, May, 1964). How do they in fact work out? And what implications do these results—in their first stages—have for the theory?

I asked some students to attempt brief, rapid drills in which they were to emphasize contrast, stating about a thing only what it is not (as part of the definition of the element as a unit). A sample: "Chalk is not a fountain pen because it does not have a metal point nor use ink. Chalk is not a pencil because it contains no lead and is not encased in another substance. Chalk is not a crayon because it contains no wax." The result proves unsatisfactory—as lit[illegible]re—precisely because it fails to take [illegible]ge of other components of a liter[illegible]it. It does not build a structure [illegible]rating the individual sentences [illegible] merely piles them up like

cordwood. The monotony experienced through the dull repetition of the one sentence type suggests that acceptable communication requires variety. But more than sheer variety is involved. Rather, an interesting narrative or argument requires a multi-dimensional structure beyond the sentence. Exercises on contrast must be supplemented with further exercises to teach the person to reach complexity of sentence type and complexity of paragraph and essay structure as wholes. (A report of an attempt of this kind was given by Alton Becker at the CCCC meeting in New York in March, 1964.)

Although my assumption has been that for some purposes it might prove useful to start with very simple drills, these must be followed by integrating exercises. Beyond all exercises, however, there will continue to lurk an observer element not prescribable or programmable. Among the students following the same set of instructions referred to above on contrast, some of them added more interesting, nonpredictable observations: "A horse . . . is not a cat as it does not meow, nor eats birds, nor have claws. It is not a dog because it doesn't bark nor wag its tail nor climb up on people's laps."

To me—as one observer—it appears clear that there is a corollary to this intricate set of concepts: Just as no complete success has ever been achieved in devising a mechanical procedure to *analyze* a novel or sentence, so also we must not build our homes on any mechanical procedure to *generate* all possible useful and *beautiful* sentences and sonnets. (For discussion of the capacity of the unconscious versus the conscious in composition, as an antidote to over-formalization of the composition curriculum, see articles by Janet A. Emig, William Stafford, and Margaret Blanchard in *CCC*, February, 1964).

Beyond the linguist lives the artist.

Linguistic Theory as an Aid to Invention

HUBERT M. ENGLISH, JR.

ONE CANNOT WRITE "by" a linguistic theory as such, or at least one would not want to. The analogy of painting by numbers comes to mind: *by* suggests that the writer or painter is a mere mediator, not originator, that his contribution is only the mechanical execution of a design formed by someone else.

Nevertheless we recognize that some of the qualities of original composition can be systematically sought out. We learn to ask ourselves questions about the role or voice we want to assume for a particular piece; we develop our own lists of favorite *topoi* where we can usually find things to say; we contemplate our subject in relation to some larger design or framework of ideas—Aristotle's four causes, Hegel's thesis, antithesis, and synthesis. If linguistic theory can contribute to a systematic approach that will work for most students by reducing the amount of unproductive effort that goes into their papers, then writing "by" a linguistic theory makes good sense.

The ways in which such a contribution might be made, I believe, are two. The first is exemplified by the "slide rule" composition course developed recently at the University of Nebraska [See Margaret E. Ashida and Leslie T. Whipp, "A Slide-Rule Composition Course," *College English*, 25 (October, 1963), 18-22] in which students first work out detailed descriptions of the linguistic features of certain specimens of expert writing (e.g., counts of compound sentences and post-verb subordinate clauses, kinds of sentence openers, kinds of appositives, transitional devices), and then attempt to incorporate these features in their own writing. The approach here is through form; the effort is directed at fostering imitation.

My subject, however, is the other way in which it seems to me that linguistic theory might contribute to the teaching of composition. Here the approach is through content and the effect is to foster invention.

Pretty clearly the difficulty of teaching invention is at the heart of the problem of teaching a student how to write. You can't do much about his unity, coherence, and emphasis if he has nothing to say. Too few papers present the teacher with real cerebration, that fundamental substance of thought that must be there before he can work effectively as critic and editor. Without it there is nothing much for him to do but to correct spelling and punctuation and to tell the student in a final comment that he failed to meet the assignment.

I want to make it clear that the order of thought I am remarking the absence of is relatively low, low enough to be within anybody's grasp. I am not concerned with a kind of thought that is foreign to the student's present knowledge and experience. His inability to write intelligently about collectivism or the Swedish cinema does not trouble me; that will presumably come in time. What does trouble me is the student who is unable to produce anything on a subject that I know he does know something about—an object before his eyes, a common word to be defined, a straight-forward essay that he has just read. Not subtle insights, keen sensitivity, stylistic refinement; just elementary evidence of a mind at work. It is at

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this level, I think, that linguistic theory—namely one branch of tagmemic theory as developed by Professor Kenneth Pike of the University of Michigan—can help a student order his thinking about a subject and get that thinking into writing. (See *CCC*, May, 1964, pp. 82-88).

Professor Pike's work with a great many languages over the years has led him to the idea that all language systems, despite an enormous variety of means, are designed to provide certain fundamental kinds of information about "units" (structural wholes at any level) within the system. Each unit, in other words, from the phoneme on up the grammatical hierarchy, becomes intelligible because the system of which it is a part fixes it for us with respect to certain concepts that are the same for all languages, even though two languages may have very different ways of providing the necessary information. Pike's analysis leads him to three such fundamental concepts: *contrast, range of variation,* and *distribution,* the last of which is subdivided into distribution with respect to class, distribution with respect to context, and distribution with respect to matrix. There is accordingly a total of five modes of knowledge, five aspects which, collectively, permit total apprehension of the linguistic unit. A chart showing the application of these five modes for a simple example—the phoneme /p/—is helpful (next page).

The application to the teaching of composition comes through a generalization that takes these ideas out of the realm of linguistics as such: these concepts turn up in all languages because they are fundamental categories of thought, basic modes through which the human mind apprehends reality. If the generalization holds, then one ought to be able to use these concepts, turned into appropriate questions, as tools for thinking systematically about any subject. If a student can master them he need no longer sit staring at a blank page and waiting for the inspiration that never comes. He has an orderly method for canvassing his knowledge of a subject and—equally important—for finding out where that knowledge is incomplete. He can put to himself a set of questions which will give his mind something definite to operate upon. They will not do his thinking for him, but they will help him bring such knowledge as he has to the point of articulation. An examination of the subject from these five points of view is almost bound to turn up something worth saying in a paper. Here, let us say, is a thing (or event or idea) to be written about: How does it differ from other things more or less like it? In what ways could we alter it without changing it essentially? What could we substitute for it? In what sort of context—spatial, temporal, conceptual—does it characteristically occur? Can it be seen in some matrix that clarifies its relationship to things that resemble it?

Suppose we take two conceivable subjects for writing, one a concrete object (*divan*) and the other an abstraction (*democracy*), and run them through the five modes. The questions and answers under each mode are intended to suggest only a few of the many possibilities.

(1) *Contrast*

Why is a divan not a chair? (Seats more than one.) Why is a divan not a bed? (Structural differences. Primary purpose not for sleeping.)

Why is a democracy not a monarchy? (Limitation on terms of office. No provision for hereditary rule.) Why is a democracy not a plutocracy? (Franchise not dependent on financial status.)

(2) *Range of Variation*

Can we upholster our divan with elephant skin? (Yes, kind of material may be varied indefinitely.) Can we upholster it with nothing? (No, such a

ASPECT	INFORMATION YIELDED ABOUT UNIT	EXAMPLE
Contrast	What it is not.	/p/, not /b/, etc.
Range of Variation	How much change it can undergo without becoming something other than itself.	Allophones of /p/: *p*it, ti*p*, etc.
Distribution (Class)	Alternatives that might be substituted for it in a particular structure.	For /p/ in *apt*: /k/, /f/, etc. (but not /b/, /d/)
Distribution (Context)	What characteristically occurs with or around it.	/sp/ but not /bp/; /pl/ but not /pm/
Distribution (Matrix)	Location in system or network that simultaneously locates comparable units.	

	Action at lips	Action at tongue tip	Action at back of tongue
Air stopped, vocal cords still	/p/	/t/	/k/
Air stopped, vocal cords vibrating	/b/	/d/	/g/
Air stopped in mouth but not in nose, vocal cords vibrating	/m/	/n/	/ŋ/

piece of furniture would be a bench or settee.) Can we remove its back? (No, it would then be a couch or day bed.) Its arms? (Problematical; usage of the term is not so precisely fixed.)

Can a democracy tolerate communal ownership of property? (Yes, so long as the people retain effective control over such property.) Can it tolerate the suppression of educational institutions? (Doubtful; a knowledgeable electorate is probably essential.)

(3) *Distribution with Respect to Class*

In typical circumstances (say a living room) could we replace our divan with a bookcase? (Suited to setting but not to function.) With a bed? (Suited to function but not to setting.) With cushions on the floor? (Carries certain social implications: greater informality, etc.)

Could the freedom of the people be preserved if a democratic form of government were replaced by a limited monarchy? (Possibly, but the limitations would probably turn out to be democratic in character.) What if the democratic form were replaced by a benevolent despotism? (Probably not; contentment need not include freedom.)

(4). *Distribution with Respect to Context*

In places where divans are found, what is typically found with them? (In living rooms, chairs, tables, lamps, etc., but probably not other divans—although these might turn up in club rooms, theatre lounges, or hotel lobbies. Such places are other typical contexts for a divan, each with its own distinctive features.)

What other characteristics of a society tend to accompany a democratic form of government? (Literacy, prosperity, stability, materialism—a case might be made for any of these, as well as for others. Whether the democratic form of government is cause or consequence, of course, is another fruitful question, and one that this approach leads to.)

(5) *Distribution with Respect to Matrix*

To fix "divan" in relation to comparable entities, one might devise a matrix with the obvious "dimensions" of purpose and capacity; that is, down the left side we might write "for sitting" and "for reclining"; across the top, "one person," "two people," three or more." The nature of "divan" could then be seen to reside partly in the fact that it alone of the various kinds of furniture will fit in two of the compartments thus created: "for reclining, one person" and "for sitting, three or more."

A similar kind of matrix might be constructed for forms of government, with "democracy," "communism," "fascism," etc. occupying the various compartments. A variation, perhaps equally instructive, would be a matrix with compartments designed to contain not forms of government but the governments of specific countries. At the left we might list economic bases of societies—e.g., "capitalistic" and "socialistic." Across the top, the distribution of power—e.g., "divided" and "centralized." The problem of placing recognized democracies and recognized non-democracies in such a matrix ought certainly to yield insight into the nature of democracy.

Hopefully the student who has grasped the five modes of thought will be able to apply them, almost like a map grid, to the terrain of any subject and thus introduce a degree of order that will place him in the position, not of having to find ideas, but of having to choose from an abundance of them. The crucial question, of course, is whether the return in invention is commensurate with the investment in time and attention that grasping the theory requires. Elaborate scaffolding is wasteful if the finished building is no more than a cottage. Our experience at the University of Michigan suggests that there is no simple answer to this question.

Seven graduate students teaching sec-

tions of the regular Freshman English course last year agreed to participate with me in an informal trial program over a period of five weeks. After two weeks of preparations including frequent meetings with Professor Pike, each of us devoted three weeks to imparting the concepts of the theory to his students through explanation in class and through a series of jointly produced writing assignments intended to lead the class through the five modes of thought one by one. One more paper done at the end of this period (which in some cases stretched beyond three weeks) presumably reflected whatever benefit the students had been able to derive from their theoretical studies. The period of instruction, as well as the training period for teachers that preceded it, was kept deliberately short: we were interested in finding out what could be gained from a minimum investment. As might be expected, where the teacher was sold on what he was doing the student apparently benefited; it was impossible to say that "the experiment" worked or didn't work.

Some observations, though, held generally. The period of time allotted was not enough. The theory, unlike, say, a mathematical operation, cannot be applied widely as soon as the general principle is grasped. It requires a good deal of "soaking in," a considerable amount of trying out before it can be used with any degree of sureness. An individual instructor whose interest runs in this direction and who can take the time to master the theory and explore its applications can, I believe, produce a noticeable improvement in the writing of some of his students. For a multi-sectioned course taught by a large staff, however, the use of this theory probably requires a more elaborate training program than can be contemplated, although the existence of an appropriate textbook might create a significantly different situation.

Student writers under the influence of the theory frequently became absorbed in the means to the detriment of the end: instead of writing good essays they wrote papers that exemplified the theory elegantly. One teacher complained of "excessive hairsplitting"; another that students managed to work in some aspects of the theory "only after a peculiar stretch of the imagination, which, while interesting, did not always lead to relevant distinctions." The difficulty here, I think, is not so great as may appear at first sight. It is in fact a common problem when the student's attention is first directed to technique: apparently there is an inevitable stage during which conscious control of means must manifest itself in awkward and mechanical ways. Rhetorical ideas too—organization, for example—when first presented for conscious employment are more than likely to turn up in a highly artificial form.

But this does not mean that we can be content with the way in which partly digested theory gives the whole writing process the cramp, especially since linguistics, being farther removed than rhetoric from the actual practice of writing, can cause more pain. On the face of it, and until research teaches us better, rhetoric in a broad sense appears to be the logical subject matter of a course that aims to improve writing. Linguistics, though it may afford valuable insights, stands at a remove. Linguistics is concerned with language as fact, rhetoric with language as instrument; the one is science, the other art. Before the insights of linguistics can be put to effective use in a composition course they must undergo a kind of translation into rhetoric, into ideas directly applicable to writing. Given such a translation, solid benefits may be hoped for, but it by no means follows automatically from the presentation of linguistic ideas.

A Linguistic Analogy in Literary Criticism

ALAN B. HOWES

THE USE OF ANALOGY in literary criticism has a respectable tradition going back at least as far as Aristotle, who took an analogy from biology when he said that the plot of an epic "should have for its subject a single action, whole and complete, with a beginning, a middle, and an end" and thus "resemble a living organism in all its unity." He used the same analogy in speaking of the necessary "magnitude" of the action imitated in a tragedy, since "a beautiful object, whether it be a living organism or any whole composed of parts, must not only have an orderly arrangement of parts, but must also be of a certain magnitude." [S. H. Butcher, *Aristotle's Theory of Poetry and Fine Art* (Dover Publications, Inc., 4th Ed., 1951), pp. 89, 31]

As teachers we all use this analogy and others. We point out the "organic" unity of works of literature and likewise try to get our students to aim at the same kind of unity in their own writing; but we often find that students do not grasp a work in its totality, or at least are not able to demonstrate such a grasp in the critical papers they write. If we are to train our students to write more intelligently about literature, to become more competent literary critics, I think we must help them to find new approaches. On the whole, we have tended to emphasize problems of organization more than problems of perception. We talk a good deal about the ways to organize the material for a critical paper, but we are apt to scant the ways in which the student may arrive at insights to be organized—in other words, the whole part of the process which must precede the actual writing if one is to have anything to say worth saying.

Whatever perspectives we have supplied to help the student in arriving at insights have tended to fall into two categories: first, the conventional breakdown into parts—plot, setting, character, and theme for fiction; or image, idea or theme, metrics, and so on for poetry; and second, some rather specialized approaches ranging from the Freudian interpretation to the biographical approach, all reductive to one degree or another because they insist upon a single perspective which often tends to limit rather than to enlighten.

Even the more sophisticated and more fruitful specialized approaches such as those described in Reuben Arthur Brower's "The Speaking Voice" or Cleanth Brooks' "The Language of Paradox," though they provide fresh and stimulating insights, may lead a student to apply a theory too rigidly to a literary work where it may not be altogether appropriate. We have not found an ideal approach that forced the student to pay attention in a systematic way to all the parts of a literary work, the interrelationships of those parts, and the whole work as made up of different kinds of parts in interaction. Hence the critical papers we get tend either to become catalogues of separate elements or to apply a specialized approach where it may not work: that is, either to talk about imagery, rhyme scheme, and theme as if they bore no relationship to each other, or to see irony, personas, or Freudian symbols behind every tree. If students are to write better criticisms of literature for us, we must help them

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to find ways of arriving at broader insights and integrating these insights into coherent discussion.

Thus when Professor Kenneth Pike suggested to me that perhaps his "model" (as he called it) or "analogy" (as I would call it) of particle, wave, and field, which he had been developing for the study of language might also be a useful tool in the study of literature, I thought it would be worthwhile to see whether it might help in solving some of the problems I have mentioned. In general terms, the theory behind the model affirms that insights can be complete only when one views things from three separate points of view: first, as segments, collections of details, or smaller units—that is, particles; second, as interrelationships in which boundaries between segments are "smeared" (to use his term) and the individual particles take on new meaning as one perceives a wave-like overlapping among them; and finally, as total contexts or "fields" in which the individual parts become into a whole which derives its character from the intersection and interrelationship of all its parts.

The analogy may be applied to literature at different levels. A word, a rhyme, a line, a stanza, or a major division of a poem, for example, may be seen as particle, viewed along with other particles of like size. (Two separate sonnets might even be viewed as particles within a sonnet sequence.) A wave can involve the overlapping relationship between two words, two lines, or two major divisions of a work. Likewise, though the concept of field would most often be applied to total works, any sizable subdivision—a stanza, an image, a section, even a line—might well be viewed as a field within the larger field of the whole poem. The theory promotes flexibility of perspective, and it may be applied to widely differing works of literature.

Let me illustrate its application to one kind of poem by showing how it might be used as a tool of literary criticism in discussing Ezra Pound's two line poem entitled "In a Station of the Metro":

> The apparition of these faces in the crowd;
> Petals on a wet black bough.

I choose this poem because it represents in little a good many of the problems of analysis that one has in dealing with longer poems. The reader's first impression of this poem—in other words, his first vague perception of field—includes the setting in the Paris subway, as indicated in the title, and the sharp image in which the faces in the crowd are compared to petals on a wet, black bough. Various connotations are also a part of the initial impression—especially those associated with the usual drabness of the subway crowd and those associated with the freshness of the rain drenched branch of the tree, laden with petals. The task of analysis is in part to show the relationship of the two parts of the metaphor and further to see whether this relationship suggests a thematic statement. At this point, let us see whether the analogy of particle, wave, and field is of help.

The poem may be seen as consisting of two major particles, represented by the division into two lines, a division which also reflects the two parts of the metaphor. But there are also other ways of looking at its "parts." One may take the key words—"apparition," "faces," "crowd," "petals," "wet," "black," and "bough." Within the two major particles, the two parts of the metaphor, there are correspondences: "faces" to "petals" and "crowd" to "bough." Thus each of these words achieves full meaning only when viewed with the other and hence there is a wave-like relationship between them. There is also a correspondence between "apparition" and "petals"—grammatically, the two are equated. And here

a further interrelationship is suggested, with the two meanings of "apparition" (both "appearance" and "ghostly appearance") serving to join the two parts of the metaphor with a wave-like motion, since the dual connotations of "apparition" affect the connotations in the rest of the poem.

Let us return to the "field" or total context of the poem. This context can obviously be viewed in various ways. First of all, there is the situation in which the poet speaks, the setting, the character of the speaker, the audience to which he speaks. Second, there is the context of the words, their denotative and connotative dimensions, and of the image with all its details. Finally, there is the context of the traditions of the form—the short, unrhymed poem of irregular rhythm, in this case derived, as Pound tell us, from Japanese haiku. The intersection of these various contexts makes up the field. From the context of the traditions of form we are prepared to have the poem present an insight sharply, using a metaphor from nature. From the context of the situation, we are prepared by the juxtaposition of the scene in the subway and the scene from nature for an insight which will bring seemingly discordant things together. Finally, from the context of the language itself and its connotations we take the final step in seeing beauty in an unlikely place and arriving at an understanding of the theme of the poem. We arrive at this "field" view of the poem, however, only by putting all of these contexts together. We share the wonder of the poet at finding beauty in the unlikely setting of the subway crowd only if we sense the unpromising nature of the scene, follow him in the metaphor he develops with connotations of individual words by which he suggests a new way to view the scene, and accept the validity of the overall aesthetic method he takes of presenting a kind of epiphany, a concisely stated insight drawing upon an image from nature.

Let me give a further illustration of the application of this approach to a rather different kind of poem, though again one consisting of two lines, Robert Frost's "The Secret Sits":

> We dance round in a ring and suppose,
> But the Secret sits in the middle and knows.

Here, to be briefer, one may again take each line as a major particle, and also consider the key words. The parts of the metaphor are somewhat more elusive, because the fusion of the two parts is more complete and only a few details are given, mainly those which create the contrast between "We," "dance," "ring," and "suppose," on the one hand, and "Secret," "sits," "middle," and "knows" on the other. The full meaning of the first line is apparent only when the wave-like overlapping of the contrast, introduced by "But," is complete. In the field, various contexts converge. There are the suggestion of the child's game and all its associations, the religious overtones from the capitalization of "Secret," the somewhat comic effect of the rhyme—all these contribute to the partially comic and amused tone of the whole, which in turn contributes to the thematic statement: an amused and detached description of the human condition.

I sensed several potential advantages for students in approaching a poem through the analogy of particle, wave, and field. Above all, this approach encourages flexibility of perspective. It also demands that the student consider a number of details before choosing the important ones for discussion, it emphasizes transitions and interrelationships more firmly than many approaches, and it stresses the dynamic or organic nature of the whole. Further, it promotes analysis and synthesis at the same

time, since the student is often forced to work with whole and parts simultaneously. Finally, it has the advantage of having limits and hence avoiding the reductionism of most critical formulas: it helps the student to see all the significant elements, but it doesn't tell him which elements are more crucial than others. It is a tool for arriving at the raw material of critical insights, but it doesn't force that raw material into a preconceived mould.

I have used this approach in brief experiments in two classes, both composed of juniors and seniors who were prospective teachers of English. In one class we were making an extended study of Browning's poetry, in the other class of Frost's. The theory was presented to the class with an indication of its linguistic origins and something of the possible range of its literary application. Students were then given an assignment in which they were asked to use the analogy as a tool in the discussion of a poem and to write an evaluation of the usefulness of the theory.

As one might predict, the results reflected reactions ranging from enthusiasm to bafflement, though on the whole students were enthusiastic and interested even if they sometimes felt they didn't fully understand the "model." Obviously any analogy, if it is to be useful in literary criticism, must become a matter of habit so that it is applied, in part at least, unconsciously, and the limitation to one assignment didn't give the students a chance to build up habits. Many students, however, said that the analogy had forced them to analyze the poems more closely and arrive at a more intricate and more complete understanding. When I continue the experiment with another class, I will place less emphasis on the linguistic origins of the analogy and more emphasis on its flexibility. I will suggest that the best way to apply the analogy is first to read the poem through and get a general idea of it (some students felt cramped by the fact that they thought they were being asked to look at details before they looked at the whole) and then go back and make a more detailed and thorough analysis. Finally, I will demonstrate the possibilities of the approach by extended discussion of several poems in class before I send them off to write papers applying the theory on their own.

What I have been saying is perhaps merely another way of stressing two things: the value of making our students aware of the need for truly comprehensive analysis before they write about literature, and of finding a tool to aid them in this process which will be both flexible and incisive. In other words, we do not need a tool that will produce totally new insights or help us to look for new things, but rather one that will be more efficient in helping students to see all the things that we have traditionally tried to help them to see. It is too early to tell whether the analogy of particle, wave, and field is the best tool of this sort; but it appears promising because it promotes the flexibility necessary to true insight and at the same time promotes within that flexibility a completeness of view.